

## REMARKS

The Office Action dated January 14, 2005, has been received and carefully noted. The amendments made herein and the following remarks are submitted as a full and complete response thereto.

Claim 1 has been amended. Accordingly, claims 1 and 8 are pending in the present application and are respectfully submitted for consideration.

### Claims 1 and 8 Rejected under 35 U.S.C. §102(e) or under 35 U.S.C. §103(a)

Claims 1 and 8 were rejected under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Sharma et al. (U.S. Patent No. 5,980,701, hereinafter "Sharma"). In addition, claims 1 and 8 were rejected under 35 U.S.C. §102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Eliasson et al. (U.S. Patent No. 6,375,832, hereinafter "Eliasson"). Applicants respectfully traverse these rejections and submit that each of these claims recites subject matter that is neither disclosed nor suggested by the cited prior art.

Claim 1 recites a plasma reactor comprising, among other features, a dielectric material positioned between the pair of electrodes, wherein a first predetermined gap d1 is formed between a first electrode of the pair of electrodes and the dielectric material, and a second predetermined gap d2 is formed between a second electrode of the pair of electrodes and the dielectric material, and wherein an amount a at the center of the dielectric material in the width direction, is offset from the midpoint of the distance between the pair of electrodes and satisfies the formula

$$0 \leq a \leq 0.5 \times (d1 + d2 / 2).$$

It is respectfully submitted that the prior art fails to disclose or suggest at least the above-mentioned features of the Applicants' invention.

Figure 1C of Sharma discloses a plurality of first electrodes 110, dielectric material 130 between conductive element 132 of the first electrode 110 and the surface 112 of the liquid 102. The dielectric material 130 of Sharma is necessary to completely encase the conductive element 132. In addition, Figure 1C of Sharma discloses the first electrodes 110 suspended between liquid supply ports 134. The liquid 102 is supplied through a liquid supply header 136 to each liquid supply port 134, which overflows so that a liquid layer 138 forms on the exterior surface 140.

FIG. 2 of Eliasson shows a dielectric barrier discharge reactor. Eliasson shows a high voltage AC generator 1 connected to the first electrode 2 and to the second grounded electrode 3 arranged in the planar form. In addition, Eliasson shows a dielectric layer 4 is typically a glass, quartz or ceramic tube having a thickness of between about 0.1 mm and about 5 mm and covers the effective surface of electrode 2. The shape-selective catalyst 5 covers the dielectric layer 4. Gaseous composition passes through the discharge gap 6.

Applicants submit that Sharma or Eliasson fails to disclose or suggest each and every element recited in claim 1 of the present application. In particular, it is submitted that the configuration of Sharma as well as the configuration of Eliasson are neither comparable nor analogous to the structural configuration a plasma reactor as recited in claim 1 of the present application.

For example, Sharma shows a first electrode 110 in direct contact with the dielectric material 130. In addition, Eliason discloses a first electrode 2 in direct contact with dielectric layer 4.

In contrast, the present invention provides a plasma reactor, such as the one shown in Figures 6-8, where the dielectric material is not in contact with the pair of electrodes. Specifically, page 21, lines 18-19 of the present specification provides,

a plasma reactor PR shown in Fig. 6 [where] neither of the first or the second electrodes E1 and E2 is in contact with the dielectric material D.

Hence, Applicants submit that Sharma or Eliasson fails to disclose or suggest each and every element recited in claim 1 of the present application.

Moreover, to qualify as prior art under 35 U.S.C. §102, a single prior art reference must teach, i.e., identically describe, each feature of a rejected claim. As explained above, Sharma or Eliasson fails to disclose or suggest each and every feature of claim 1. Accordingly, Applicants respectfully submit that claim 1 is neither anticipated by nor rendered obvious by the disclosure of Sharma or Eliasson. Therefore, Applicants respectfully submit that claim 1 is allowable.

As claim 8 depends from claim 1, Applicants submit that claim 8 incorporates the patentable aspects therein, and are therefore allowable for at least the reasons set forth above with respect to the independent claim, as well as for the additional subject matter recited therein.

Accordingly, Applicants respectfully request withdrawal of the rejection.

## **Conclusion**

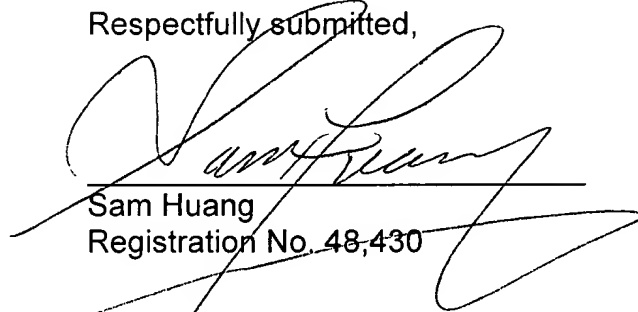
In view of the above, Applicants respectfully submit that each of claims 1 and 8 recites subject matter that is neither disclosed nor suggested in the cited prior art. Applicants also submit that the subject matter is more than sufficient to render the claims non-obvious to a person of ordinary skill in the art, and therefore respectfully request that claims 1 and 18 be found allowable and that this application be passed to issue.

If for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper has not been timely filed, the Applicants respectfully petition for an appropriate extension of time.

Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300.

Respectfully submitted,



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Enclosure: Petition for Extension of Time (1 Month)